(c) whether the Indian Space Research Organisation (ISRO) can predict the climatic changes; if so, the details thereof?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI BHACHI SINGH RAWAT): (a) The Indian Meteorological Department has been issuing Long Range Monsoon Forecasts correctly for the last 14 years using a Statistical Model that relates to seasonal rainfall with antecedent regional and global weather conditions. It makes forecasts for the country as a whole and not for smaller regions. This years' monsoon forecast by the IMD had a negative deviation of (-) 19 percent from predicted value. A degree of uncertainty is inherent in any statistical model.

(b) Department of Science and Technology has constituted a Committee of Scientists to examine the existing system and suggest improvements.

(c) No Sir, Indian Space Research Organisation is primarily responsible for building satellite systems with meteorological payloads capable of providing data, which when integrated with other appropriate collateral data, enables to arrive at meaningful forecasting models that could predict climate changes.

Experiments about monsoon failure

449. SHRI C.P. THIRUNAVUKKARASU: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether the Indian Meteorological Department's experts have examined the causes for the failure of the just concluded summer monsoon in the country;

(b) if so, the details thereof;

(c) whether the results of experiment conducted jointly by several organisations in the Arabian Sea between June, 15 and August, 15 to gather ocean and atmospheric observations have been examined;

(d) if so, the details thereof; and

(e) the measures to be adopted for long range month-wise prediction of the Monsoon in future?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI BHACHI SINGH RAWAT): (a) to (e) The Indian Meteorological Department has examined the causes of failure of this year's monsoon. This year, the onset of the southwest monsoon over Kerala was on time (29 May). It covered peninsular India, northeast region and some parts of east central India by middle of June, as per its normal pattern. The rainfall activity was normal (+7%) during June. This was caused mainly by the development of a low pressure area that moved westward across central parts of the country. Thereafter, there was delay in its further progress. Dry spells and breaks in the monsoon are the normal features of the monsoon system. This year, however, the break in the monsoon developed even before its advance over north/northwest India resulting in prolonged dry summer conditions. The details of the failure of Monsoon 2002 are as follow:—

(i) The delay in the progression of monsoon was due to the presence of an anomalous anticyclonic flow/descending motion over western parts of country.

(ii) Heavy rainfall events are in association with monsoon depressions which develop over Bay of Bengal during monson season. Not a single monsoon depression formed during this season as against the normal of 5-6 depressions per season.

(iii) Most of low pressure areas formed during the season we/e quite feeble. They were short lived and moved along the seasonal trough.

(iv) The seasonal/monsoon trough itself had been quite weak and was located close to foothills of Himalayas for a long time in July.

(v) The cross equatorial flow in the Arabian Sea as well as in the Bay of Bengal was extremely weak. Cloud system moved towards pacific Ocean particularly during the month of July and in the second half of September.

(vi) The El-Nino showed an anomalous behaviour in that, it weakened over the area off Peru coast during monsoon season but strengthened over West Pacific Ocean.

The Department of Science and Technology (DST) is coordinating the Arabian Sea Monsoon Experiment (ARMEX) under Indian Climate Research Programme (ICRP) in two phases. The first phase was organised from 15 June to 15 August this year with the participation of a large number of national organisations. In order to understand development of small scale heavy rain producing systems associated with Offshore trough/vortex attempts were made to gather atmospheric and oceanic observations which were maximised during 'Intensive Observation Period'. These observations are being currently analysed by all the participating agencies. The second phase of ARMEX will be conducted from mid March to mid May 2003, in which observations will be collected to understand the development and collapse of warm pool in southeast Arbian Sea. The total picture will emerge only after the second phase is over.

Action has been initiated to develop the forecast models for the month-wise prediction of monsoon rainfall.

Import Export of HR Coils

450. SHRI JANARDHANA POOJARY: Will the Minister of STEEL be pleased to state:

(a) whether it is a fact that though Indian Steel Companies have adequate stock and production capacity to meet the domestic demand, import of HR Coils, to the extent of 2/3rd of the country's demand is allowed;

(b) whether it is a fact that exports of Indian HR Coils has stopped due to high anti-dumping and countervailing duties imposed in the USA, EU & Canada; and

(c) if so, the measures taken to provide relief to Indian manufacturers and contain resentment among them?

THE MINISTER OF STATE OF THE MINISTRY OF STEEL (SHRI BRAJ KISHORE TRIPATHY) : (a) As per the existing policy